ABSTRACT OF THE DISCLOSURE

A plasma reformer for the chemical reforming of gaseous mixtures of water and hydrocarbon fuels for producing hydrogen. The reformer contains a reaction chamber with outer lateral walls containing emitter electrodes and inner lateral walls containing collector electrodes. The emitter electrodes and collector electrodes form an electric circuit. There are a multiplicity of thin needle-like extrusions on the emitter electrode from which a profusion of high energy electrons are emitted. These high-energy electrons dissociate the hydrocarbon fuel through absorption and ionization emitting low energy electrons in the process. These low energy electrons cause dissociation of water. Thus, dissociation of hydrocarbon fuel acts to initiate dissociation of water. The molar ratio of water to hydrocarbon fuel in the input mixture for reactions, and therefor the production of hydrogen from water, increases with carbon number of the hydrocarbon fuel.